

ABSTRACT OF THE DISCLOSURE

[0030] Image systems having three dimensional pixels. Each pixel is comprised of a substrate and a three dimensional stack of color sensors. Wavelength sensitive color reflectors are inserted between the individual color sensors and the semiconductor substrate. Incoming photons are partially converted into an electric charge in a color sensor. The unabsorbed portion is wavelength-selectively reflected to produce additional charge in the color sensor. The transmitted portion passes into a lower color sensor to produce an electric charge in that lower color sensor. The unabsorbed portion is wavelength-selectively reflected by another color reflector to produce additional charge in the lower color sensor. The process repeats for still lower color sensors/ color reflectors. The substrate includes logic to interrogate the color sensors. Electrical conductors connect the substrate to the individual color sensors.